Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of Comments on the Technology Advisory Council Spectrum Policy Recommendations	ET Docket No 17-340

COMMENTS OF THE WIRELESS BROADBAND ALLIANCE

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I. INTRODUCTION AND SUMMARY

Founded in 2003, the mission of the Wireless Broadband Alliance (WBA) is to resolve business issues and enable collaborative opportunities for service providers, enterprises and cities, enabling them to enhance the customer experience on Wi-Fi and significant adjacent technologies. Building on our heritage of Next Generation Hotspot and carrier Wi-Fi, WBA will continue to drive and support the adoption of Next Generation Wi-Fi services across the entire public Wi-Fi ecosystem, including IoT, Big Data, Converged Services, Smart Cities and 5G. Today, membership includes major fixed operators such as BT, Comcast and Charter Communications; seven of the top 10 mobile operator groups (by revenue) and leading technology companies such as Cisco, Microsoft, Broadcom, Google and Intel. WBA member operators collectively serve more than 2 billion subscribers and operate more than 30 million hotspots globally. The WBA Board includes AT&T, Boingo Wireless, BT, Cisco Systems, Comcast, Intel, KT Corporation, Liberty Global, NTT DOCOMO and Orange. For a complete list of current WBA members https://www.wballiance.com/join-us/current-members/.

The WBA is thankful for the diligent work and thoughtful recommendations of the Technology Advisory Council (TAC) in regard to principles for the Commission's spectrum policy. We are also encouraged by the Office of Engineering and Technology (OET) request for comment on these recommended principles, and we are pleased to offer the following input.

In general, the WBA believes that adopting spectrum policy principles would help guide both the Commission and industry by incenting good engineering practices in

equipment design and network deployment. Importantly to WBA members, the TAC proposal recommends Commission adoption of non-binding policies, as opposed to mandatory rules or regulations. The distinction is critically important, as mandatory rules must be followed unless a rule waiver request – supported by good cause shown – is filed and approved. A policy, however, exists as general guidance to be drawn upon as the Commission exercises its enforcement or rulemaking authority, and can be disregarded if following the policy in a given case does not result in a public interest benefit. Due to the variety of existing and likely future radio technologies, and the complexities of introducing more band sharing across a very diverse set of incumbencies, WBA supports the use of policy guidance, and opposes mandatory rules.

For the most part, the policy principles articulated in the Public Notice are supported by the WBA, with a few exceptions and caveats noted below. While few in number and concise in wording, the TAC recommendations address some increasingly critical aspects of spectrum management – especially given the growing trend towards multiple services making use of the same frequency bands. The principle recommendations capture some of the key considerations for regulators regarding coexistence of services, spectrum sharing, responsibilities of both transmitters and receivers, the information needed by the Commission to assess protection requirements, and how those protection requirements may be conveyed by the Commission.

II. INTERFERENCE REALITIES

Principle #1 -- Harmful interference is affected by the characteristics of both a transmitting service and a nearby receiving service in frequency, space or time.

The WBA agrees that harmful interference involves both transmitters and receivers, that harmful interference will be characterized differently in different situations, and that FCC policy should acknowledge that harmful interference is not susceptible to a single definition.

Principle #2 – All [radio] services should plan for non-harmful interference from signals that are nearby in frequency, space or time, both now and for any changes that occur in the future.

With one caveat, the WBA agrees that this is a good policy principle, and constitutes good engineering practice that provides guidance to industry. The WBA suggests that the principle be modified so that rather than planning for "any" future non-harmful interference, planning be directed to focus on "foreseeable" non-harmful interference.

Principle #3 – Even under ideal conditions, the electromagnetic environment is unpredictable. Operators should expect and plan for occasional service degradation or interruption. The Commission should not base its rules on exceptional events.

The WBA agrees that this is a good policy principle, and sets a fair expectation on the part of industry when seeking or evaluating specific rules.

III. RESPONSIBILITIES OF [RADIO] SERVICES

Principle #4 – Receivers are responsible for mitigating interference outside their assigned channels.

The WBA agrees that this is a good policy principle, and a far better approach than mandatory receiver requirements. This principle helps provide guidance to industry.

Principle #5 – Systems are expected to use techniques at all layers of the stack to mitigate degradation from interference.

The WBA supports this principle with the caveat that different technologies will have different capabilities to mitigate interference. We recommend the Commission delete the word "all" as there could easily be a gap between what is technically possible and what makes good engineering practice for a particular technology. We suggest that the policy indicate that techniques at "various" layers of the stack could be used to mitigate interference.

Principle #6 – Transmitters are responsible for minimizing the amount of their transmitted energy that appears outside their assigned frequencies and licensed areas.

The WBA agrees that this is a good policy principle. With respect to many existing services, OOBE limits are already in place that supercede this policy principle. With respect to geographic areas, various techniques exist to mitigate energy outside of licensed areas, and the policy should remain flexible on how a licensee fulfills its mitigation responsibilities.

IV. REGULATORY REQUIREMENTS AND ACTIONS

Principle #7 – Services under FCC jurisdiction are expected to disclose the relevant standards, guidelines and operating characteristics of their systems to the Commission if they expect protection from harmful interference.

The WBA generally supports this principle with respect to radio emissions characteristics. Our membership typically works with radio technologies whose standards are publicly available. That said, we note that the Commission has the capability to accept confidential data, and that in no event should a policy require a manufacturer or other stakeholder to publicly file confidential data concerning inventions that otherwise would not be in the public domain.

Principle #8 – The Commission may apply Interference Limits to quantify rights of protection from harmful interference.

The WBA advises that the Commission should continue to proceed cautiously and incrementally with respect to using interference limits in enforcement or rulemaking. As the TAC White Paper notes, there are a number of complex issues about how to set and manage interference limits, and those issues are highly band- and fact-specific.[1] Therefore, the WBA recommends the following rewording of the Principle #8: *"Subject to band-specific considerations, the Commission may choose to apply Interference Limits, or other equivalent means or measures, to quantify rights of protection from harmful interference."*

As a general matter, the use of harm claim thresholds by the Commission could be helpful not only in creating clear expectations for Commission action, but also provides good guidance to industry. Further, in bands where database coordination of the RF

[1] See generally [TAC White Paper at pages 20-23]

environment is utilized, interference limits are often necessary inputs to the database for calculating transmitter operating characteristics and determinations regarding access to spectrum.

Principle #9 – A quantitative analysis of interactions between services shall be required before the Commission can make decisions regarding levels of protection.

Quantitative analysis is a useful tool, and has been utilized in previous proceedings to understand how a proposed new use of a band would impact an existing use. That said, the WBA does not support the idea that a quantitative analysis should be used in all cases, as the proposed policy principle suggests. For example, a new proposed use might be geographically remote from the existing use, or the proposed use might include a mitigation that would effectively guard against harmful interference. The WBA would support a policy principle that encourages the use of quantitative analysis, but stops short of requiring one.

V. OTHER TAC RECOMMENDATIONS

Risk-informed interference assessment.

Consistent with the WBA's views above on Principle 9, the WBA generally supports a movement to increase the use of quantitative analysis, risk-informed assessment and statistical service rules, provided that these are not required in all cases. The WBA supports the recommendation of the TAC that the FCC "start small and not attempt a major overhaul in its regulatory approach."

Should the Commission pursue this path, it must commit to supplying sufficient engineering staff competent to manage this process.

Steps for improving interference resolution and enforcement.

The WBA agrees that next-generation architectures for harmful interference resolution are worthy of exploration and development, with the caveat that there is no "one-size-fits-all" approach to either bands or technologies. The WBA further supports the proposal to create a public database of past interference events, provided that such a database contains the key technical data that enables an observer to ascertain how the harmful interference arose. Enforcement Bureau decisions have been inconsistent in supplying such data. That's unfortunate as prior cases can help industry avoid making the same mistakes. The WBA further endorses the concept of incorporating the work of interference hunters in FCC processes.

VI. CONCLUSION

The WBA believes that the adoption of non-binding policy principles can be helpful in both informing regulatory action and providing guidance to industry, acknowledging that a specific principle may not be appropriate, or further the public interest, in a certain situation.

The WBA is grateful to the TAC members who have thoughtfully prepared these recommendations, and we hope our comments will assist their efforts.

Respectfully,

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